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Bilateral estimates of the critical mach number for some classes of carrying wing profiles

Avkhadiev F., Elizarov A.
Kazan Federal University, 420008, Kremlevskaya 18, Kazan, Russia

Abstract

A problem of estimation of the critical Mach number for a class of carrying wing profiles with a fixed theoretical angle of attack is considered. The Chaplygin gas model is used to calculate the velocity field of the flow. The original problem is reduced to a special minimax problem. A solution is constructed for an extended class of flows including multivalent ones, hence M* is estimated from above. For a fixed interval [0, β0], β0 ≃ 3π/8, an estimate of M* is given from below. © Australian Mathematical Society 2001,.